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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,643	07/31/2001	Diane D. Ilsley	10991398-1	5729

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EXAMINER

LIU, SUE XU

ART UNIT	PAPER NUMBER
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1639

DATE MAILED: 01/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/919,643	ILSLEY ET AL.	
	Examiner	Art Unit	
	Sue Liu	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 29-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/15/02 & 7/31/01</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Note: Change of examiner in this application.

Election/Restrictions

1. Applicant's election with traverse of Group I (Claims 1-28) in the reply filed on 12/22/2005 is acknowledged. The traversal is on the ground(s) that there would not be serious burden to search all the different groups of inventions. This is not found persuasive because the different groups are drawn to distinct products or methods as shown by their different classification and/or recognized divergent subject matter. Even though some of the groups are classified in the same class/subclass, this has no effect on the non-patent literature search. The different methods and products will require completely different searches in both the patent and non-patent databases, and there is no expectation that the searches will be coextensive. Therefore, these do create an undue search burden, and restriction for examination purposes as indicated is proper.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 29-34 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 12/09/2005.

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3. Claims 1-34 are currently pending;
- Claims 29-34 have been withdrawn;
- Claims 1-28 are being examined in this application.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the phrase “in a manner sufficient”, which is indefinite since the term “sufficient” is not clearly defined.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-28 are rejected under **35 U.S.C. 102(b)** as being anticipated by Deeg et al (US 5,338,688; 08/16/1994).

The instant claims briefly recite a method of generating polypeptide arrays using thermal inkjet head on a substrate.

Deeg et al teach a method generating of a biochemical analytical liquid to a target (See Abstract of the reference). The reference teaches ejecting biochemical analytical liquid from a jet chamber (See Claim 1 of the reference), and an ink-jet printing head with an ink reservoir (would read on firing chamber) was used (See Column 6, lines 58-68 of the reference). Since thermal inkjet would utilize pressure to eject fluid onto substrate and aspiration of reagent solution (e.g. See Example 4, step e)), these would read on “applying back pressure to said head”. These would read on a thermal inject head comprising an orifice (See Figure 1 of the reference, for example) and a firing chamber, and positioning said loaded thermal inkjet head in opposing relation to said surface (See Figure 1 of the reference). The reference further teaches the target could be paper or polystyrene tubes (would read on planar substrate and surface of reagent chamber; See Column 7, lines 55-60; Column 8, lines 14-17). The reference teaches the biochemical analytical liquid could be an enzyme, an antibody, etc. (would read on protein and enzyme that are members of a specific binding pair; See Claim 8 of the reference). In addition, the reference teaches the quantity of liquid ejected through the jet is no more than 2000 picoliters (would read on no more than about 2 or 5 microliter; See Claim 14 of the reference). The referenc also teaches the metered volumes were between 0.23 and 80 nl (would read on “not exceed about 200 picolitres”; See Column 7, line 24). The reference further teaches a concentration of 0.5 mg/ml (would read on “protein of interest is present in said fluid at a

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concentration that ranges from about 5 to 1000 ug/ml) of the enzyme peroxidase was used to deposit in tubes by ink-jet (See Column 7, lines 14-17). Furthermore, the reference teaches washing steps consisting of metering tap water (would read on washing the head following actuating step; See Example 4, a)-h) of the reference).

Thus, the reference clearly anticipates the claimed invention.

8. Claims 1, 2 and 9 are rejected under **35 U.S.C. 102(a)** as being anticipated by Caren et al (US 6,221,653; 04/24/2001).

The instant claims briefly recite a method of generating polypeptide arrays using thermal inkjet head on a substrate.

Caren et al teach a method for depositing a quantity of fluid containing a plurality of binding agents onto a substrate surface (See Claim 19 of the reference). The reference further claims the deposition is through a thermal inkjet (See Claim 1), and applying back pressure to said head during the contacting step (See Claim 7). The reference further teaches the deposit fluid comprises biomolecule (would read on proteins; See Claim 3 and Column 3, lines 25-33).

Thus, the reference clearly anticipates the claimed invention.

9. Claims 1, 2, 9 and 11 are rejected under **35 U.S.C. 102(e)** as being anticipated by Caren et al (US 6,797,469 B2; 09/28/2004; filed 03/26/2001).

The instant claims briefly recite a method of generating polypeptide arrays using thermal inkjet head on a substrate.

Caren et al teach a method for depositing a quantity of fluid containing a nucleic acid or polypeptide (would read on protein and enzyme) onto an array surface (See Claim 19 of the reference). The reference further claims the deposition is through a thermal inkjet (See Claim 19), and applying back pressure during the contacting step (Claim 20). The reference further teaches the deposited quantity ranges from about 0.1 to 2000 pico liters (See Claim 23).

Thus, the reference clearly anticipates the claimed invention.

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1, 2, 9 and 11 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 19-21 and 23 of U.S. Patent No. 6,797,469 B2 (hereinafter referred to as ‘469 patent). Although the conflicting claims are not identical, they are not patentably distinct from each other. The ‘469 patent recites a method for depositing a

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quantity of fluid containing a nucleic acid or polypeptide (would read on protein and enzyme) onto an array surface (See Claim 19 of the reference). The reference further claims the deposition is through a thermal inkjet (See Claim 19), and applying back pressure during the contacting step (Claim 20). The reference further teaches the deposited quantity ranges from about 0.1 to 2000 pico liters (See Claim 23).

12. Claims 1, 2 and 9 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 5-7, 9, 10, 12 and 23 of U.S. Patent No. 6,221,653 B1 (hereinafter referred to as '653 patent). Although the conflicting claims are not identical, they are not patentably distinct from each other. The '653 patent recites a method for depositing a quantity of fluid containing a plurality of binding agents onto a substrate surface (See Claim 19 of the reference). The reference further claims the deposition is through a thermal inkjet (See Claim 1), and applying back pressure to said head during the contacting step (See Claim 7). The reference further teaches the deposit fluid comprises biomolecule (would read on proteins; See Claim 3 and Column 3, lines 25-33).

13. Claims 1, 2, 9 and 11 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 5, 9, 11-13, 15 and 18 of U.S. Patent No. 6,656,740 B1 (hereinafter referred to as '740 patent) and claims 1-6 of its related U.S. Patent No. 6,872,359. For simplicity sake, only the relevant claims from the '740 patent (the parent) are discussed below. Although the conflicting claims are not identical, they are not patentably distinct from each other. The '740 patent recites a method for fabricating an array of

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biopolymers on a substrate using a biopolymer fluid (would read on protein and enzyme; See Claim 1 and Column 4, lines 20-25). The reference further claims the deposition is through a thermal inkjet (See Claims 9 and 11). The reference teaches varying primer pressure reaches a value that is less than ambient pressure outside the orifice (Claim 13), which would read on applying back pressure. The reference further teaches the fluid capacity of the chamber is in the range between 1 pL to 10 nL (See Claim 18), which would read on the deposited quantity not exceeding about 200 pL.

14. Claims 1, 2, 6, 7, and 8 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5, 7 and 11-19 of U.S. Patent No. 6,323,043 B1 (hereinafter referred to as '043 patent) and claims 1, 2, 4 and 6 of its related U.S. Patent No. 6,884,580. For simplicity sake, only the relevant claims from the '043 patent (the parent) are discussed below. Although the conflicting claims are not identical, they are not patentably distinct from each other. The '043 patent recites a method for fabricating an array of biopolymers on a substrate using a biopolymer fluid (would read on protein and enzyme; See Claim 1 and Column 5, lines 63+). The reference further claims the deposition is through a thermal inkjet (See Claim 1 and Column 10, lines 23-35). The reference teaches the load pressure is a negative pressure (Claim 2). The reference also teaches the jet head is exposed to cleaning fluid (e.g. Claim 7), which would read on washing the head.

15. Claims 1-4 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 8, 12, 14, 15 and 18 of U.S. Patent No. 6,242,266 B1

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(hereinafter referred to as '266 patent) and claims 1-4 and 8-10 of its divisional U.S. Patent No. 6,372,483 B2. For simplicity sake, only the relevant claims from the '266 patent (the parent) are discussed below. Although the conflicting claims are not identical, they are not patentably distinct from each other. The '266 patent recites a method for fabricating an array of biopolymers on a substrate using a biopolymer fluid (would read on protein and enzyme; See Claim 1 and Column 6, lines 14-15). The reference further claims the deposition is through a thermal inkjet (See Claim 1 and Column 3, lines 45-50). The reference teaches the spotting pressure is a negative pressure (Claim 3). The reference also teaches each fluid droplet deposited on the substrate has a volume of from 0.1 to 1000 pL (Claim 8).

16. Claims 1 and 6 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 16-18, 21 and 23-24 of copending Application No. 10/932,886. Although the conflicting claims are not identical, they are not patentably distinct from each other. The reference application teaches a method of synthesizing or depositing a biopolymer on a substrate using a dispensing head with biopolymer fluids, which would read on protein and enzyme deposited with thermal inkjet (See Claim 1 and paragraph [0040] and [0003]).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

17. Claims 1, 3, 4, 6, 7, 8 and 11 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 22-31 of copending

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Application No. 10/933,122. Although the conflicting claims are not identical, they are not patentably distinct from each other. The reference application teaches a method for screening a fluid sample by actuating the inkjet head in a manner sufficient to expel said fluid onto a location on the array substrate (See Claim 22), which would read on depositing a fluid onto a substrate by using thermal inkjet. The reference application further teaches the fluid sample comprises a polypeptide (would read on protein and enzyme; See Claim 27). The reference also teaches filling the inkjet head with a wash fluid (Claim 24), which would read on wash the inkjet head. The reference further teaches the deposited fluid sample does not exceed 200pL in volume (Claim 30). In addition, the reference teaches the sample fluid is deposited onto a substrate with a plurality of binding agents and detecting specific binding interaction between binding agent and an analyte (Claim 22). This would read on the protein of interest is a member of a specific binding pair.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

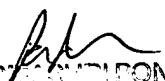
No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sue Liu whose telephone number is 571-272-5539. The examiner can normally be reached on M-F 9am-3pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on 571-272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


PARVATHI PONNAMALURI
PRINCIPAL EXAMINER

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1/17/2006